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Agilent Ref: 10010792-1
United States Application Serial No. 10/023,375**RESPONSE**

In view of the following remarks, the Examiner is respectfully requested to withdraw the rejections and allow Claims 1-17 and 29-41, the only claims pending and currently under examination in this application.

Formal Matters

Claims 1-17 and 29-41 were examined and rejected.

Claims 1, 10 and 30 have been amended to specify that the multiple die printhead comprises a single orifice plate comprising a plurality of orifices and a plurality of thermal printhead dies each comprising a top and bottom surface, wherein said top surface comprises a plurality of resistors and is bonded to a surface of said orifice plate. Support for this amendment may be found throughout the specification, for example at p. 8, lines 1-5; p. 9, lines 10-15; and p. 14, lines 15-18.

Claims 18-28 were previously canceled.

As the above amendments introduce no new matter, their entry by the Examiner is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 1-4, 6-13, 15-17, 29-33 and 35-41 continue to be rejected under 35 U.S.C. § 103 (a) as allegedly being rendered obvious by Beerling et al. (U.S. Patent No. 6,508,536) in view of McDevitt et al. (U.S. Patent No. 6,713,298).

With respect to rejections made under 35 U.S.C. § 103, MPEP § 2142 states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) [emphasis added].

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The present invention is drawn to printheads in which multiple printhead dies are bonded to an orifice plate having a plurality of orifices. As amended, the claims now specify that each multiple die printhead comprises a single orifice plate comprising a plurality of orifices and a plurality of thermal printhead dies each comprising a top and bottom surface. The top surface of each printhead die comprises a plurality of resistors and is bonded to a surface of the single orifice plate. In other words, an element of the instant invention is that one orifice plate is bonded to the top surface of a plurality of printhead dies where the top surface of each printhead die includes resistors thereon.

As presented in the previous response, Beerling et al. discloses a single carrier substrate having a plurality of printhead dies mounted on its surface with each printhead die having its own orifice plate. As such, Beerling et al. fails to teach a single orifice plate bonded to the top surface of a plurality of printhead dies where each top surface includes resistors thereon.

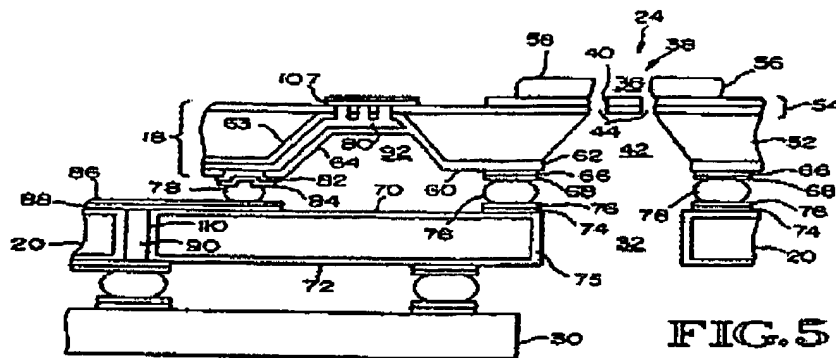
The rejection continues to be maintained because the Examiner equates the orifice plate of the instant invention with Beerling's carrier substrate or layers of Beerling's actual printhead die.

In the Final Office Action, the Examiner alleges that Beerling describes an orifice plate at col. 4, lines 15-17 (Office Action, p. 3). However, the cited passage specifically states that "each printhead die has a first surface...and a second surface ...opposite the first surface." As such, Beerling is merely describing the printhead die itself in the above passage.

Furthermore, the Examiner alleges that Beerling's carrier substrate..."has a plurality of orifices at (32), (see figure 3 and 5) (Office Action, p. 5). However, the orifices are fluid refill channels on the carrier substrate (20).

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A representative embodiment of Beerling's assembly is provided in Figure 5 below which clearly demonstrates that Beerling's carrier substrate or printhead die layers cannot be equated to the presently claimed orifice plate.



According to Beerling's disclosure, each printhead die (18) comprises a silicon die (52), a thin film structure (54), and an orifice layer (56). Further, Beerling teaches that each printhead die (18) is mounted on the surface (20) of the carrier substrate in rows. As such, each printhead die (18) consists of a silicon die, a thin film structure, and an orifice layer with each die mounted on the surface of the carrier substrate. Therefore, Beerling's printhead consists of a plurality of individual printhead dies (18) each with its own orifice plate and each bonded to the **same carrier substrate** (20).

As evident from the figure above, Beerling's printhead die (18) comprises a top surface that includes a resistor (40) which is bonded to an orifice plate (56) and a bottom surface bonded to the carrier substrate (20).

As such, Beerling's single carrier substrate is not the equivalent of an orifice plate as in the present invention because the carrier substrate (20) is not bonded to the top surface of a plurality of printhead dies with each top surface including resistors thereon. Furthermore, as discussed above, each of Beerling's printhead dies include its own orifice layer (56). As such, Beerling fails to teach a single orifice plate as in the present invention.

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According to the Advisory Action, the Examiner further maintains that the orifice plate may be at (20) or alternatively at (20 and 58) or equated to elements (52) or (54).

In the previously submitted response, the Applicants pointed out that elements (52) and (54) are actually part of the printhead die itself. However, in the Advisory Action, the Examiner did not find this argument persuasive and responded by stating that elements (20 and 58) may be "separate elements from a printhead die" (p.2, Advisory Action).

In response, the Applicants submit that element (20) is the carrier substrate and element (58) is the top surface of the orifice plate, both of which are not equivalent to the presently claimed orifice plate as discussed above.

Further, regardless of whether elements 52 (the silicon die) and 54 (thin film structure) are considered part of the printhead die or separate elements, Beerling fails to describe a single silicon die or thin film structure having a plurality of printhead dies bonded to its surface.

As such, the Applicants submit that Beerling et al. fails to teach or suggest a single orifice plate bonded to the top surface of a plurality of printhead dies where each top surface includes resistors thereon. Therefore, Beerling fails to teach or suggest each and every element of the present invention.

As McDevitt et al. was cited solely for teaching that biopolymers can be applied to a substrate using Ink-jet printer heads, this reference fails to make up the fundamental deficiency in Beerling et al.

Because, the combined teachings of Beerling et al. and McDevitt et al. fail to teach or suggest each and every element of the claimed invention, the Applicants submit that a *prima facie* case of obviousness has not been established for Claims 1-

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4, 6-13, 15-17, 29-33 and 35-41. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Claims 5, 14 and 34 have been rejected under 35 U.S.C. § 103 (a) as allegedly being obvious over Beerling et al. (U.S. Patent No. 6,508,536) in view of McDevitt et al. (U.S. Patent No. 6,713,298) and further in view of Gordon et al. (U.S. Patent No. 5,855,835).

As noted above, Beerling et al. and McDevitt et al. fail to teach or suggest each and every limitation found in the claims of the present application. In particular, Beerling et al. and McDevitt et al. fail to teach or suggest a single orifice plate bonded to the top surface of a plurality of printhead dies where each top surface includes resistors thereon.

Since Gordon was cited solely for teaching the formation of a resistor on a substrate that is made of a semiconductor, the cited reference fails to make up for the deficiency of Beerling et al. and McDevitt et al. Therefore, the references alone or in combination do not teach each and every element found in the claims.

In view of the foregoing discussion, the Applicants respectfully request that the rejection of Claims 5, 14 and 34 be withdrawn.

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CONCLUSION

In view of the amendments and remarks above, the Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone John Brady at 408- 553-3584.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078, order number 10010792-1.

Respectfully submitted,

Date: 9-27-06

By: Gerri N. Rochino
Gerri N. Rochino
Registration No. 58,147

Date: 9-27-06

By: Bret E. Field
Bret E. Field
Registration No. 37,620

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, Colorado 80537-0599

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